

Research Article

The Effect of Covid-19 Pandemic Process on Risk Perception, Coping Ways of Turkish Pregnant Women

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Abstract

Background: Pregnancy is a healthy part of life but it may be considered that "being pregnant during the pandemic" is a factor affecting the risk perception of pregnant women. Effective coping ways can contribute to women's management of risk perception during pregnancy in this process. This study aimed to determine the effect of the Covid-19 pandemic process on the risk perception and coping ways of pregnant women.**Methods:** The sample size was calculated as 1050 pregnant women. Pregnant women who came to hospital for routine pregnancy examinations without a diagnosis of psychiatric/chronic disease and who volunteered to participate were included in the study.**Results:** The pregnant women age mean was 27.63. The findings indicate that there was a statistically positive correlation between the age, gravida, and gestational age of the pregnant women and risk perception towards herself and baby. There was a significant negative correlation between gestational age and the self-confident approach and optimistic approach. Moreover, there was a significant positive correlation between the age, number of gravida, and gestational age of the pregnant women and the seeking social support approach.**Conclusion:** Finally, during pandemics, all pregnant women should continue to receive a biopsychosocial multidimensional pregnancy follow-up, and where appropriate, interventions should be made.

1. Introduction

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection known as COVID-19 is a global public health issue. On March 11, 2020, the World Health Organization declared it a global pandemic with a 3% to 15% fatality rate [1, 2]. There were more than 6,620,631 infection-related deaths as of November 21, 2022, and there were 637,970,133 cases of COVID-19 infection worldwide [3]. Due to the infection's potential for morbidity and fatality, some nations have closed their borders. The treatment of susceptible/high-risk groups with comorbidities has been regarded as a major concern in the management of COVID-19 infection [4–6]. It is understood in this context that those who are older, have special health issues, or have weakened immune systems are most susceptible to contracting the virus [7]. One of the high-risk groups in this process is pregnant women. Although a woman's pregnancy is a physiological and normal process, it is a time when she is likely to face hazards for both the mother and the fetus. Additionally, because pregnancy partially suppresses the immune system, pregnant women are more susceptible to viral infections [8]. Due to their immunosuppressed state, pregnant women are particularly vulnerable to respiratory infections and severe pneumonia. Pregnant women are less tolerant to hypoxia, and the mechanical and physiological changes that take place during pregnancy (such as diaphragm elevation, increased oxygen intake, and edema of the respiratory tract mucosa) hasten the course of respiratory failure [4, 9]. At the beginning of the pandemic, no firm conclusions were reached

regarding the potential risks to the fetus newborn, the potential for different symptoms in pregnant women with COVID-19 pneumonia than in non-pregnant women, the potential for mortality or preterm delivery in pregnant women with COVID-19 pneumonia, and the potential for intrauterine transplacental transmission of COVID-19. These ambiguities have made it challenging to define guidelines for obstetric treatment and care for pregnant women diagnosed with COVID-19 infection as well as to develop efficient preventive and therapeutic initiatives [9–11].

Pregnancy is a healthy part of life, but it may be considered that "being pregnant during the pandemic" is a factor affecting the risk perception of pregnant women. This is because conditions that pose a threat to pregnancy alter pregnant women's perceptions of risk [11]. Risk perception is the subjective judgment that people have about the probability and potential harms of a risk [12, 13]. Risk perception influences how pregnant women behave in terms of their health. For instance, low-risk perception may encourage pregnant women to use drugs, skip checkups, and overlook situations that call for medical attention, whereas high-risk perception may make pregnant women more susceptible to stress [5, 14]. High levels of stress during pregnancy are frequently directly tied to worries about the baby's health and potential side effects of pregnancy, labor, and delivery. Numerous issues, including preeclampsia, depression, premature labor, low birth weight, intrauterine growth retardation, and a low APGAR score, are predisposed by perceived extreme stress. In addition, the expectant mother's daily activity performance, hunger, temperament, and quality of sleep are all severely impacted by the level of stress [15, 16]. Numerous circumstances that stressed out pregnant women have occurred as a result of the COVID-19 epidemic. For example, changes in birth plans due to quarantine restrictions and concerns about whether their families (mothers) would be present at the birth significantly increased the stress of pregnant women. Even in the absence of long-distance limitations, many expectant mothers worried that their families would become infected while traveling. Because of the epidemic, many expectant mothers have put off getting their regular prenatal checkups out of concern that they might contract the virus while visiting a hospital or en route there. An increase in demand for elective cesarean procedures to end pregnancies before term may be caused by extreme stress and worry. Pregnant women now face a higher risk of poisoning as a result of the virus's control and prevention measures, which include the use of chemical detergents and sodium hypochlorite. The potential harmful consequences of the virus on the pregnancy, labor, postpartum period, and threat to the fetus's newborn's health are the common worries shared by all pregnant women. Intense worry and anxiety regarding nursing and newborn care (postnatal vaccination, screening) may also be experienced [17]. Effective coping ways can contribute to women's management of risk perception during pregnancy for both herself and her baby. This study aimed to determine the effect of the COVID-19 pandemic process on pregnant women's risk perception and coping ways with stress.

2. Methods

Study Design and Population

This study is a descriptive research type and was conducted between June 15, 2021, and January 18, 2022, in a state hospital located in a province in the Central Anatolia Region in Turkey. This study aimed to determine the effect of the Covid-19 pandemic process on pregnant women's risk perception and coping ways with stress.

Sampling and Inclusion Criteria

The population of the study consisted of 5602 pregnant women admitted to this state hospital between January and December 2020. The sample size was calculated using power analysis. In the literature, no rate was found on the effect of the Covid-19 pandemic process on pregnant women's risk perception and coping ways with stress. Therefore, the p ratio was taken as 0.50 to keep the sample size at the highest level. To represent the population, the sample size was determined as 1050 women at $\alpha=0.05$ significance level, $1-\beta=0.95$ confidence interval, $\alpha=0.20$ error risk, and $1-\beta=0.80$ power. Pregnant women who came to this hospital for routine pregnancy examinations without a diagnosis of psychiatric/chronic disease and who volunteered to participate were included in the study.

Instruments

The data of the study were collected with the Personal Information Form, Perception of Pregnancy Risk Scale and Ways of Coping Questionnaire which were prepared by the researchers in line with the literature.

Personal Information Form

The form consisted of 19 questions questioning women's socio-demographic characteristics (age, educational status, employment status, etc.) and COVID-19-related characteristics during pregnancy [4, 9–11, 18].

Ways of Coping Questionnaire (WCQ)

WCQ measures the methods and thoughts that people use when they encounter stressful situations [19, 20]. Consisting of 30 items, the scale is 4-point Likert-type and the score obtained from each item varies between 0-3. The scale consists of 5 sub-dimensions: self-confident approach, optimistic approach, helpless approach, submissive approach, and social support-seeking approach. A self-confident approach, an optimistic approach, and a social support-seeking approach are active ways of coping to solve the problem. The helpless approach and submissive approach are passive ways of coping that are directed toward emotions. In this scale, in the calculation of the factor of seeking social support, items 1 and 9 are reverse scored. The scores obtained from the questions belonging to each factor are summed and the average score of the factor is obtained by dividing the total for that factor by the number of questions. The lowest score that can be obtained from each subscale is 0 and the highest score is 3. The scale does not have a total score. An increase in the average score of each subscale indicates that the coping method is used more frequently by the person. The internal consistency coefficients for each subscale of the scale were 0.80 for the self-confident approach, 0.68 for the optimistic approach, 0.73 for the helpless approach, 0.70 for the submissive approach,

and 0.47 for the social support-seeking approach. The reliability coefficients of the five subscales ranged between 0.47 and 0.80 and the reliability coefficient for the whole scale was found to be 0.68 20. In this study, Cronbach's alpha coefficients for the self-confident approach, optimistic approach, helpless approach, submissive approach, and social support-seeking approach subscales of the scale were 0.77, 0.76, 0.72, 0.82, 0.86, respectively.

Perception of Pregnancy Risk Scale (PPRS)

PPRS measures the current risk perception of pregnant women toward "themselves" and "their baby" [21]. The scale's Cronbach's alpha coefficient is 0.84. The scale has 2 sub-dimensions and 9 items. Just below each item in the scale, there is a 0–100 mm linear line with the expression "no risk at all" and "extremely high risk". By adding up the scores for each of the nine items on the scale and dividing the total by nine, the scale's overall score is determined. It is also possible to score the scale's elements. For example, the factor "Pregnant women's risk perception toward their baby" (items 2, 6, 7, 8, and 9) is calculated by adding the scores of its five items and dividing the result by five. The score for the factor of "risk perception of the pregnant woman towards herself" (item 1, item 3, item 4, item 5) is obtained by summing the scores for each of the 4 items under this factor and dividing the score by 4. There is no cut-off point on the scale. It is accepted that a pregnant woman will perceive herself and baby as more at risk the higher her score on the scale.22 In this study, Cronbach's alpha coefficients for the total, current risk perception of the pregnant woman towards herself and risk perception of the pregnant woman towards her baby sub-dimensions were 0.82, 0.87, and 0.86, respectively.

Statistical Analysis

The data obtained from the study were evaluated with the SPSS 23.0 program. In the analysis of the data, descriptive statistical analysis (Mean, Standard Deviation, Frequency, Ratio, Minimum, Maximum), Pearson Correlation Analysis was used to evaluate the relationships between normally distributed parameters. The results were evaluated bidirectionally at 95% confidence interval and significance level $p < 0.05$.

Ethical Approval

Before starting the research, research approval was obtained from "TR Ministry of Health, General Directorate of Health Services, Covid-19 Scientific Research Evaluation Commission". The data were collected using the online survey method. Participants who gave their consent filled out the forms. In order to protect the rights of the participants within the scope of the research, the ethical principles were met before collecting the research data: the "Informed Consent" principle by explaining the participants the purpose of the study, the "Privacy and Protection of Privacy" principle by telling them that the information to be collected would be kept confidential, and the "Respect for Autonomy" principle by including those who wanted to participate voluntarily. There was no clinical intervention for the participants in the study.

3. Results

Distribution of pregnant women according to some characteristics

Among the pregnant women who participated in our study, 87.4% were between the ages of 18–34 years and the mean age was 27.63 ± 5.13 years. 37.9% of the pregnant women had undergraduate/graduate education, the mean duration of marriage was 5.60 ± 4.58 years, and 85.4% were nuclear families. 79.9% of the pregnant women had no occupation, and 10.1% stated that they had a low-income level. 33.9% of the pregnant women had a history of one pregnancy, 55.1% had a history of one delivery, 11.8% had a history of 1–2 abortions, and 2.5% had a history of one curettage. 55.9% of the pregnant women were in the 27–40th gestational week. It was determined that 4.8% of the pregnant women who participated in our study had health problems in their previous pregnancies; all of them did not stop prenatal care follow-up during the pandemic period.

Distribution of pregnant women according to related some Covid-19 characteristics

67.0% of the pregnant women stated that they received information about Covid-19, and 66.5% of those who received information stated that they obtained information from mass media. In the pandemic, 67% of the pregnant women had a risk perception about themselves, 67.2% had a risk perception about their baby, 67.2% had an increased stress level, and 79.6% found their ability to cope with stress inadequate Table 1.

PPRS and WCQ total and sub-dimension score means

The PPRS total, herself risk perception, and baby risk perception sub-dimension scores of pregnant women were found respectively 53.46 ± 15.15 ; 46.63 ± 8.71 ; 41.71 ± 7.48 Table 2.

The scores obtained by pregnant women from the total, self-confident approach, optimistic approach, helpless approach, submissive approach, and social support-seeking approach sub-dimensions of the WCQ were respectively 43.40 ± 10.05 ; 8.22 ± 3.92 ; 9.39 ± 2.79 ; 9.64 ± 4.33 ; 9.40 ± 2.30 ; 11.85 ± 1.98 Table 2.

The correlation of scale sub-dimension scores

A statistically significant negative correlation was found between the mean scores of the self-oriented risk perception and infant risk perception sub-dimensions of the PPRS and the mean scores of the self-confident approach, optimistic approach, and social support seeking approach sub-dimensions of the WCQ ($p < 0.05$). A statistically significant positive correlation was found between the mean scores of the

Table 1: Distribution according to some characteristics related to Covid-19 of pregnant women (n=1050).

Characteristics	n (%)
Getting Knowledge About Covid-19	
Yes	703 (67.0)
No	347 (33.0)
Knowledge source (n=703)*	
Media (TV, radio, internet)	468 (66.5)
Health personnel	440 (62.5)
Friend / family	78 (11.0)
Risk to self in pandemic period	
Increased	703 (67.0)
Decreased	27 (2.6)
Not affected	320 (30.5)
Risk to baby in pandemic period	
Increased	668 (63.6)
Decreased	18 (1.7)
Not affected	364 (34.7)
Stress level in pandemic period	
Increased	706 (67.2)
Decreased	34 (3.2)
Not affected	310 (34.7)
Ability to Own-Cope with Stress	
Unsufficient	836 (79.6)
Sufficient	214 (20.4)

* More than one option ticked; percentages are taken over “n”.

Table 2: Total and Sub-dimension mean scores of the PPRS and WCQ.

Scales and Sub-dimensions	Scale Min – Max Score	Study Min-Max Score	m (sd)
PPRS			
Risk to self	0-100	20-68	46.63±8.71
Risk to baby	0-100	18-66	41.71±7.48
Total	0-100	16-68	53.46±15.15
WCQ			
Self-confident approach	0-21	3-16	8.22 ± 3.92
Optimistic approach	0-15	3-15	9.39 ± 2.79
Helpless approach	0-24	4-24	9.64 ± 4.33
Submissive approach	0-18	3-17	9.40 ± 2.30
Social support seeking approach	0-12	2-12	11.85 ± 1.98
Total	0-90	18-70	43.40±10.05

Abbreviations: PPRS, Perception of Pregnancy Risk Scale; WCQ, Ways of Coping Questionnaire; m, mean; sd, standard deviation

Table 3: Correlation of sub-dimension scores of PPRS and WCQ scales.

WCQ	PPRS			
	Risk to self		Risk to baby	
	r ^a	p	r ^a	p
Self-confident approach	-0.284	0.000	-0.275	0.000
Optimistic approach	-0.159	0.000	-0.450	0.000
Helpless approach	0.785	0.012	0.610	0.000
Submissive approach	0.615	0.001	0.270	0.000
Social support	-0.217	0.000	-0.386	0.000
Seeking approach				

Abbreviations: PPRS, Perception of Pregnancy Risk Scale; WCQ, Ways of Coping Questionnaire; a Pearson's correlation coefficient

Table 4: Correlation of scale sub-dimension scores according to some characteristics of pregnant women.

Scales	Characteristics					
	Age		Gravida		Gestational Age	
	r ^a	p	r ^a	p	r ^a	p
PPRS						
Risk to self	0.70	0.000	0.26	0.042	0.84	0.000
Risk to baby	0.84	0.000	0.44	0.040	0.74	0.000
WCQ						
Self-confident approach	0.43	0.038	0.26	0.631	-0.77	0.012
Optimistic approach	-0.04	0.430	0.42	0.049	-0.80	0.001
Helpless approach	-0.07	0.210	0.07	0.95	0.210	
Submissive approach	0.56	0.211	0.28	0.320	0.04	0.240
Social support	0.72	0.000	0.64	0.022	0.53	0.004
Seeking approach						

Abbreviations: PPRS, Perception of Pregnancy Risk Scale; WCQ, Ways of Coping Questionnaire; a Pearson's correlation coefficient

self-oriented risk perception, infant-oriented risk perception sub-dimensions of the RPPS, and the helpless approach, submissive approach sub-dimension scores of the WCQ ($p < 0.05$) Table 3.

The correlation of scale sub-dimension scores according to the some characteristics of pregnant women

There was a statistically positive correlation between the age, gravida, and gestational age of the pregnant women and the sub-dimensions of risk perception towards self and risk perception towards the baby of the PPRS ($p < 0.05$). It was determined that there was a significant positive correlation between the age of the pregnant women and the mean score of the self-confident approach of the WCQ. There was a significant negative correlation between gestational age and the mean scores of the self-confident approach and optimistic approach. There was a significant positive correlation between the age, gravida, and gestational age of the pregnant women and the mean score of seeking social support approach ($p < 0.05$) Table 4.

4. Discussion

At the beginning of the pandemic, when the available data was limited, it could not be determined whether COVID-19 infection increased the risk of abortion and stillbirth, and its effect on the course and outcome of pregnancy in the first and second trimesters [8]. However, possible fetal complications of COVID-19 were thought to be abortion (2%), intrauterine growth retardation (10%), and risk of preterm labor (39%) [4]. When the infection occurs in the third trimester of pregnancy, it has been predicted to cause premature rupture of membranes, preterm labor, fetal tachycardia, and fetal distress [8]. However, many studies have revealed that the prognosis of COVID-19 is more promising compared to Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) and Middle East Respiratory Syndrome Coronavirus (MERS-CoV) [4]. Studies evaluating the clinical characteristics of pregnant women who developed COVID-19 pneumonia and the impact of infection on prognosis have yielded consistent findings [8–10, 22–24]. In these studies, the clinical features of COVID-19 pneumonia in pregnant women were similar to non-pregnant adult patients who developed COVID-19 pneumonia; compared to SARS-CoV infection, COVID-19 infection followed a relatively favorable clinical course in pregnancy; in near-term pregnancies, the virus was not found in amniotic fluid, placenta, breast milk, or nasal secretions of newborns, and no evidence for intrauterine/transplacental transmission from mother to fetus was obtained [8–10, 22–25]. In another study, it was determined that none of the newborns born to pregnant women who developed COVID-19 pneumonia required special pediatric treatment; the 1-minute Apgar score was between 8-9 and the 5-minute Apgar score was between 9-10 in all births. Breast milk samples obtained from mothers with COVID-19 infection were found not to contain SARS-CoV-2 [9].

Although the findings obtained from the studies are not alarming, COVID-19 infection affects the risk perception of pregnant women and makes them more vulnerable to stress as it is associated with various maternal, fetal, and neonatal risks. Therefore, it is important to focus attention on the pregnant population during pandemic periods and to maintain complete prenatal care services [26]. It was determined that all of the pregnant women participating in this study continued prenatal care follow-up throughout the pandemic period. Similarly, in the

study conducted by Biresaw, Takelle, Gebeyehu [16], it was found that all of the participants have not stopped prenatal follow-up since the pandemic period. In another study conducted by Awad-Sirhan et al. [26] in which 695 pregnant women participated, it was emphasized that perceiving the accessibility and availability of health services (regular pregnancy care and follow-up protocols) had a protective effect on the mental health of pregnant women. In our study, approximately 2/3 of the pregnant women stated that they received information about COVID-19, and those who stated that they received information cited mass media (66.5%) and health professionals (62.5%) as sources of information Table 1. In another study, mass media was reported to be the source of information about COVID-19 for the majority of pregnant women (368, 88.7%), followed by health professionals (126, 30.4%) [16]. Rashidi Fakari and Simbar [17] found that at the beginning of the pandemic, pregnant women who participated in prenatal controls expressed concerns about the lack of information about virus protection and the limited availability of reliable sources of information. These data are closely related and consistent with each other because many issues, such as the measures taken during the pandemic process, whether to use masks or not, vaccine-drug studies for the treatment of the disease, risk groups, claims that the virus is man-made, and the reliability of the tests performed, have been discussed by the mass media. Health professionals assumed an important responsibility in conveying scientific information about COVID-19 infection, about which very little information was available, to the public. However, the scarcity of scientific research and insufficient evidence-based information at the beginning of the pandemic made it difficult to trust these sources unconditionally.

In our study, a significant proportion of pregnant women (67.2%) stated that their stress levels increased during the pandemic, and more than ¾ of them evaluated their ability to cope with stress as inadequate Table 1. Although studies to determine the magnitude of stress during pregnancy are limited, it has been reported that 5.5% to 78% of pregnant women experience intense stress [16]. In another study, it was determined that pregnant women had an average prenatal stress level and high anxiety in the first wave of the pandemic. The pandemic process, having a mental health problem before pregnancy, and having more than one child were considered among the risk factors that create intense stress and increase anxiety [26]. It can be accepted that COVID-19 increases the perceived stress of pregnant women. Perceived stress can be defined as experiencing distress while reacting to stressors [27]. Many factors, such as quarantine and social distancing measures, the uncertainty of the prognosis of viral infection, lack of social support, and fear of being affected by the perinatal infection, have an impact on the perception of stress [28–31]. Rashidi Fakari and Simbar [17] found that pregnant women were afraid of going to health institutions for prenatal check-ups or having their follow-ups canceled, experienced uncertainty about their birth-related plans, feared that their spouses and other family members would be less likely to accompany the birth, the pregnancy would end before its due date, and the need for the elective cesarean section would arise. However, another study found that there was a statistically significant relationship and a positive correlation between pregnant women's level of knowledge about COVID-19 and their stress levels [32]. The high prevalence of stress among pregnant women in our study may be due to the fact that the study was conducted during a period when measures against the COVID-19 pandemic were intensified and information about the infection was controversial.

We discovered that pregnant participants in our study had a moderate level of risk perception toward themselves and their baby Table 2. However, it was discovered that pregnant women who adopted a "problem-oriented/active" style in dealing with stress had a decreased risk perception toward themselves and their baby, whereas pregnant women who adopted an "emotion-oriented/passive" style had an increased risk perception toward themselves and their baby Table 3. According to a study, pregnant women with high levels of social support had a moderate risk perception and low anxiety levels when it came to the COVID-19 virus. Social support was inversely correlated with risk perception, although anxiety was positively correlated with risk perception. The information suggests that risk perception mediates the relationship between anxiety and social support [33]. By keeping people from being negatively impacted by unpleasant emotions, social support can play a direct protective function in mental health. Social support can also help people cope better with stressful situations by reducing how serious they consider them to be. According to research by Bayrampour et al. [34], pregnant women experience greater stress and anxiety the more risk they perceive. Therefore, it is crucial for health professionals to ensure that pregnant women's anxiety levels are lowered, their capacity for stress management is enhanced, and their risk perception levels are maintained in balance by giving them the appropriate knowledge and skills.

In our study, we discovered that pregnant women's perception of risk to themselves and their baby increased as gestational age grew Table 4. Pregnant women's attitudes on their own confidence and optimism reduced as gestational age rose, while their attitude toward seeking out social assistance rose Table 4. In a study, it was discovered that the first and third trimesters of pregnancy were strongly associated with perceived stress. When compared to pregnant women in the second trimester, participants in the first and third trimesters were around four and five times more likely, respectively, to experience stress [16]. Gun Kakasci and Durmaz [35] discovered that the level of belief in COVID-19 myths rose as the gestational week and gestational age progressed, which increased the level of anxiety on the one hand and a rise in health perception on the other. Community stress levels inevitably rise as a result of widespread infectious diseases [6]. It is possible to hypothesize that the unexpected development of the COVID-19 pandemic and the likelihood that it will last for a considerable amount of time given the current situation have increased this group's psychological stress.

Several limitations of this study should be noted. This study may contain a selection bias because only pregnant women who attended prenatal exams in a single hospital outpatient clinic were the subjects of the data collection. Pregnant women may have over- or under-reported their data because the study employed a personal information form to collect information.

5. Conclusions

Finally, during pandemics, all pregnant women should continue to receive a biopsychosocial multidimensional pregnancy follow-up, and where appropriate, interventions should be made. To preserve the pregnant woman's general wellbeing, balance her risk perception towards herself and baby, and assist her in developing appropriate stress management techniques, health practitioners should actively engage the pregnant woman's social support networks.

Article Information

Author's Contributions: The three author conceived the idea of this study. First co-author contributed to data analysis and manuscript writing. Second co-author contributed to data extraction and manuscript writing. Third co-author contributed to interpretation of the data and revised the manuscript for content. All authors approved the final version of the manuscript and accept responsibility for the paper.

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